# *A New Approach to Course Revision: Applying Critical Questions and a Philosophical Framework to a Revision of* 71 254 Electronic Commerce

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# Abstract

This study investigates how *71 254 Electronic Commerce* fits in with Susan Toohey's (1999) framework of philosophical approaches and the fundamental aspects of course design. It analyses the influence of various factors on the design and delivery of the course and discusses the groundwork carried out as part of the revision for this course at The Open Polytechnic Of New Zealand.

The study has enabled the author to take a holistic and systematic approach to course revision through gaining a deeper understanding of the course from a course design perspective. The knowledge gained has enabled the author to make rational strategic decisions about course enhancements, as opposed to doing ad-hoc updates that may not have enhanced student learning. Furthermore, this approach was useful for an understanding of the course's position within the institution's programmes and industry requirements, and it helped to justify the reasons for the course revision changes. While this study focuses on electronic commerce, this approach can be applied to the revision of any course and aspects of this approach could improve the course revision process.

# Contents



  

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# *A New Approach to Course Revision: Applying Critical Questions and a Philosophical Framework to a Revision of* 71 254 Electronic Commerce

## *Introduction*

*71 254 Electronic Commerce* (EC) is a level 6, semester-based elective carrying 20 credit points (Open Mind Online, 2004). The curriculum is business-oriented, designed to prepare learners for future management roles in the field of e-commerce. Technical content from an e-commerce perspective is minimal. The curriculum provides learners with an understanding of e-commerce elements and addresses technological issues associated with e-commerce.

The purpose of this study was to revise the EC course and enhance it where possible to ensure it met the needs of the marketplace. This study strives to identify a suitable approach for e-commerce education and any particular criteria that should be met in choosing the best approach. The investigations carried out as part of this study were independent of the size of the class.

This study uses as its framework Susan Toohey's central aspects of course design. Susan Toohey is an academic who works in the Professional Development Centre at the University of New South Wales (Toohey, 1999). Her work on curriculum and educational development has led her to examine various aspects of course design. In her quest to find out what is most important for students to know and how it can be best learnt, the following questions were raised (Toohey, 1999, p. 48):

1. ***What characterises knowledge in our discipline or profession?***
2. ***How does learning occur and how is it best facilitated? What should be the role of teachers and what should be expected of students?***
3. ***What goals and objectives are worthwhile and how are they best expressed?***
4. ***What content is essential and what is desirable? How should it be organised?***

  

5. ***What purposes do assignments need to serve and what form should they take?***

6. ***What resources and infrastructure are needed?***

This study responds to the above questions in relation to the *71 254 Electronic Commerce* curriculum by analysing various philosophical perspectives. Following the initial analysis, this paper discusses the philosophy underpinning the curriculum and provides justification for the curriculum changes.

## View of electronic commerce knowledge

Over the years, e-commerce has taken on various definitions. Chen, Hu and Wang (2004) feel there is no consistent definition of e-commerce. The website at http://www.google.com/search?q=define:E-Commerce is certainly a testimony of this in showing various web definitions and interpretations of e-commerce (Google, 2004). Turban, Lee, King and Chung (2000) believe the e-commerce concept refers mainly to the process of buying and selling goods and services via computer networks, including the Internet. The general theme of these definitions is that the buying and selling of goods and services must take place if the concept is to be referred to as e-commerce. So a financial exchange over a computer network is assumed. Based on this definition, virtual teaching using Web-based courses is in itself a form of e-commerce because education is offered as a commodity via the computer network (that is, the Internet) in exchange for a fee. The drive is to generate revenue and profits in order to achieve success. The underlying assumption is that the knowledge that is applied to run e-commerce websites will make a profit in the marketplace in order to be seen as useful. Otherwise, it is seen as having little value in the economy.

When e-commerce is conducted over the Internet, by its very nature, the Internet has some influence on the e-commerce discipline as well. The Internet influences the way e-commerce knowledge is presented. Being an open-ended network, the Internet allows an abundance of information to be available to the general public (Scacchi, 1994). The information is hyper-textual and largely unfiltered (Lankshear, Peters & Knobel, 2000). With increased globalisation and 'the rules of the game' constantly changing on the Internet (Gannon, 1999; Wahl, 1999), there are high levels of inconsistency of content and uncertainty about the permanency of website addresses. The considerable variability of information on the Internet implies that e-commerce knowledge is highly variable as well. Therefore, the value of knowledge or truth provided through the Internet becomes questionable because the duration for which the knowledge is held true is relatively short.

E-commerce knowledge is considered interdisciplinary because disciplines such as marketing, advertising, finance, law, business ethics, management, information systems and technology contribute to the cross-functional nature of the knowledge (Turban et al., 2000). The fundamental laws of economics apply when it comes to managing an e-commerce website (Morrow, as cited in Durlabhji & Fusilier, 2002).

Therefore, the EC curriculum is best characterised by the **traditional or discipline-based approach**, with an emphasis on rationality and managerial aspects of the knowledge (Toohey, 1999). This is in the belief that it will prepare students for future management roles in the field of e-commerce. The course takes a structural approach, including topics from the supporting disciplines that represent the business world. The knowledge taken from supporting disciplines is relatively abstract, providing sufficient information to understand and drive e-commerce. Since the knowledge is interdisciplinary, any epistemological issues in the supporting disciplines contribute to the epistemological issues in the e-commerce discipline as well. *71 130 Business Management* and *71 150 Information Systems* serve well in providing foundational knowledge to help students come to grips with e-commerce. Equivalent work experience in these areas is also acceptable as students' experiential knowledge can be utilised as they carry out their assignments. Thus, the **experiential or personal relevance approach** is also valued as a means of achieving the learning objective of the course (Toohey, 1999). It is assumed that students have fundamental knowledge of business information systems, telecommunications and associated technologies before they pursue the e-commerce course.

## The learning process and how it is best facilitated

Because virtual teaching is a form of e-commerce, institutions can use e-commerce to disseminate information and knowledge in a way that facilitates learning for both teachers and learners, thus contributing to the 'learning organisation'. E-learning therefore plays an important role in virtual education. E-learning complements the open entry to our education as it provides students with the flexibility and convenience to study at any time, in any place and in a way that best suits their circumstances, thus enabling the institution to reach students around the world.

As the learner and tutor are physically separated from each other, most of the communication takes place electronically, using information and communication technologies (ICT) like web-based discussion forums and e-mails. According to Hodgson and Kambouri, ICTs are the 'most appropriate

ways of facilitating lifelong learning' (1999, p. 188). Chickering and Ehrmann (1996) also have highlighted various benefits that ICTs bring to education: they help to improve efficiency and performance, increase access to teachers, enhance learning with the use of online databases and research libraries, improve time on tasks, and so on. Therefore, student needs in distance education are mostly addressed through online communication. Donald (2000) highlights the importance of student contact, which may be between a teacher and a student or between students.

Teacher-student contacts in face-to-face teaching help teachers gain knowledge of learners from both a physical and a pedagogical perspective (Donald, 2000).

In distance education, knowledge of students would be more from a psychological perspective as face-to-face contact sessions are minimal. Significant emphasis is placed on the tone and the choice of words used by teachers, as the teacher-student relationship is based on the effectiveness of this communication.

Student-student contact in both face-to-face and distance learning helps to stimulate further thinking, enable the development of cognitive growth and provide motivation to succeed.

## *The role of teachers and the expectations of students*

Because face-to-face contact in a distance education setting is minimal, the instructor plays a facilitator role rather than a lecturer role to motivate and guide the learners.

As the EC course is a web-based course, it is assumed that learners will have the required technology, such as a personal computer, a modem and an Internet connection, to access the e-curriculum and also know how to use a computer, for example, know how to search on the World Wide Web and/or to navigate through a website to access information.

As teachers were once students themselves, they can gain a lot from self-reflection. Through self-reflection, teachers not only understand how they have learnt; they also understand the outcome of how they were taught. As a consequence, they understand the dynamics of the teaching process and acknowledge and understand their students' ways of learning. Brookfield (1995) also highlights the importance of self-reflection for teachers. The teacher needs to have the sensitivity and insight to be able to identify and understand the deeper and often unspoken needs of students through their written communication in order to provide them with the sustenance they seek.

Dinham (1996) also points out:'…to understand students and to communicate with them, one must first understand oneself'. The more that individuals understand themselves, the better they can relate to others. This approach is based on the notion that one should treat others in the same way that one would like to be treated.

In order to achieve high order learning outcomes, teachers need to develop critical thinking among students. While students need to have the responsibility to invest their time and effort to learn, Donald (2000) points out that teachers also have the responsibility to assist students to become responsible learners. Teachers should not just advise students to think critically; they should also teach them how to do so in order to achieve the desired learning, perhaps by using examples or by providing analogies or in the way they communicate to cause deeper understanding and realisation to take place. Many students do not understand what 'critical thinking' really means or how to achieve it. Toohey (1999) believes that elements that enable deep learning should be built into the course design.

The Open Polytechnic supports over 30,000 adult learners, of which 75 per cent are over 25 years of age (The Open Polytechnic of New Zealand, 2004b). Therefore, the majority of learners are adult learners with various commitments and family obligations. As Knowles (1975) points out in his Andragogical Model, adult learners perceive themselves as self-directing human beings who have the power to choose the best options for themselves and who define themselves in light of their own achievements and experiences. Students are expected to have the responsibility to invest their time and effort to learn (Donald, 2000). Therefore, as adult learners, it is assumed that they will have sufficient drive, self-motivation and self-management skills to complete their study. These skills are useful in distance education as tutors are not physically present to motivate learners. According to the Center for Applied Special Technology (CAST), the Internet provides a medium where learners become independent critical thinkers because they are left to manage their work on their own, that is, to find information, organise and evaluate it before they can express their knowledge (2000).

## Learning goals and objectives

Online businesses are no different from traditional businesses in the sense that all aspects that need to be considered when running a traditional business need to be considered for online businesses as well. Therefore, e-commerce cannot be separated from traditional commerce (Gebler, 2000). The true skill in e-commerce comes when one knows how to apply the e-commerce principles and

theories in the marketplace. It is therefore not only about having the business or technology knowledge but also about knowing how to apply it to meet the business objectives. So the primary objective is to have a curriculum that will help to develop application skills.

According to Toohey (1999), the learning goals are expressed as a list of topics. However, at The Open Polytechnic of New Zealand, the learning goals are expressed as learning outcomes. If the learning goals are expressed as topics, then the topics seen as worthwhile pursuing in the e-commerce course (as outlined in our *Degree Programme Information 2004* brochure) are e-commerce business models, business-to-business and business-to-customer concepts, e-commerce taxation, electronic billing and payments, social, economic and legal aspects surrounding e-commerce and private networks such as an intranet and extranet, and so on (The Open Polytechnic of New Zealand, 2004a).

The other objective is to ensure the course is future-oriented and that it meets industry needs.

## Type of content

From a study of e-commerce industry requirements, it appears that the demand for e-commerce expertise is exploding in all businesses across the industry (Durlabhji & Fusilier, 2002). However, there is much debate about how to best offer e-commerce education (Gebler, 2000; Tabor, 2002; Leonhardt, 2000; Preston & Taylor, 2001). As mentioned earlier, e-commerce is claimed to be interdisciplinary because it includes various other disciplines (Turban et al., 2000). There are controversial debates about whether e-commerce deserves to be offered as a separate course or be integrated into existing programmes (Mitchell, 2000; Tabor, 2002) and also about whether it should be business-oriented or technology-oriented (Durlabhji & Fusilier, 2002). Many researchers have highlighted the importance of having a business understanding or see e-commerce as an inseparable part of the larger business curriculum (Williams, Kwak, Morrison, & Oladunjoye, 2000; Durlabhji & Fusilier, 2002), so business knowledge is ***essential***. However, these controversies do raise questions about whether the curriculum should have a technological slant or cover business and managerial aspects of e-commerce. Since business objectives and strategy drive the technology needed to run a business, having a business slant is important. However, since technical knowledge is required to launch an e-commerce website, having a combination of both business and technology in the curriculum is useful. Both Tabor (2002) and Kalakota and Robinson (1999) acknowledge that technical and business knowledge are equally important. So it would be ***desirable*** (and probably safer) to include both kinds of knowledge

in the curriculum to help learners get an overall view of the field. Activities within modules should be geared towards the learning outcomes of the course and should provide opportunities for deeper learning through analysis and research.

For a coherent overview, the various topics need to be logically structured within the e-commerce discipline. The course topics need to be structured and sequenced so that the later topics build upon previous topics, that is, in the way one would approach the business planning of the online business. This process of learning would fit in with the **systems-based approach** where '… new learning builds upon previous learning …' (Toohey, 1999, p. 52). It would include a general overview of e-business as an introduction and be followed by the fundamentals of e-commerce knowledge, e-commerce perspectives of business-to-business and business-to-customer, e-commerce technologies, economic and social aspects of e-commerce, security, legal and taxation aspects of e-commerce, online billing and payments, and so on, together with supporting knowledge from other disciplines to make the curriculum cohesive.

## *Purpose of assignments and approaches used*

Given that a business can be promoted in more than one way, it is useful to develop students' creative, analytical and application skills. Knowing how to apply the e-commerce principles, concepts and theories is important so that they can apply them in the real world to promote their online business.

In order to develop students' application skills, the e-commerce assignments should comprise problem-based questions that promote critical thinking and are subjective in nature. Critical thinking is important for cognitive development as it can lead to greater understanding of the information gained from the course material. It is also crucial for human development.

Assessments could be in the form of reports or essays of case studies on world events, e-commerce technological developments and online business planning. Students' efforts are marked based on the level of analysis and research they carry out and how they have used the e-commerce principles to draw the implications from their analysis. This kind of approach fits the **cognitive approach** to learning, where the teacher tries to draw students to new levels of analysis and critical investigation (Toohey, 1999).

## Resources and infrastructures

Appropriate resources, infrastructures and technologies need to be in place to effectively deliver the e-curriculum and to facilitate online discussions. Infrastructures such as WebCT or Blackboard help to facilitate interactions on discussion forums. Supporting resources such as e-mails, online library catalogues and databases, and various business articles on the Web would also help to facilitate e-commerce education and learning.

As we move more and more into the electronic future, video conferencing, multimedia, animation and virtual e-commerce simulation exercises would be interesting pathways to pursue to improve e-commerce learning. Video-conferencing would enable students to receive the benefit of blended learning, and the virtual simulations would allow students to learn the dynamics involved in e-commerce activities, thus leading to improved use of technologies. The Hong Kong Polytechnic University uses a role-play simulation game to give students the experience of playing various roles in an e-commerce environment, thus allowing students to gain an understanding of how to apply e-commerce principles (Ngai, 2004). This is useful if we are to effectively teach students how to apply e-commerce knowledge. However, having an infrastructure like this would be expensive, and its success would depend on funding, supporting resources and technologies to be in place for continued maintenance in the future. While the Hong Kong Polytechnic University may have the economies of scale to warrant the implementation of such an infrastructure, the justification to have similar infrastructures in other institutions may not be feasible.

As a distance education provider, The Open Polytechnic predominantly targets the New Zealand market. However, through the use of the Internet as a technology platform, it is able to reach a wider audience around the world by delivering education online, giving the impression that it is able to handle large economies of scale, like the Hong Kong Polytechnic University. The large student body at The Open Polytechnic helps to justify its present infrastructure. The use of the Internet as an educational platform is a logical way to expand this student base.

# Philosophy and description

From the above analysis and from a study of Toohey's (1999) philosophical approaches, it appears that aspects of more than one philosophical approach are used in various parts of the *71 254 Electronic Commerce* curriculum. The appendix shows how the EC course fits into Toohey's (1999) framework of five philosophical approaches. While the curriculum uses a mixture of these approaches, it is mostly characterised by elements of the traditional/discipline-based approach followed by the cognitive-based approach. The knowledge is cross-disciplinary with abstracts of other disciplines combining to provide managerial aspects of knowledge to gain 'control over the world' (Toohey, 1999, p. 50). The activities and assignments are geared towards developing cognitive abilities to achieve high order thinking for problem analysis, argument, creativity and decision-making, requiring justification and research material to support them. At The Open Polytechnic, the activities and assignments are geared towards outcomes, where student capabilities are measured in the way students demonstrate self-reflection rather than through their ability to regurgitate the course content.

Further research on the best approach for e-commerce education or on the criteria for choosing the best approach for e-commerce does not uncover any clear recommendation. However, the **competency-based approach** is popular among some institutions for their e-commerce or business curriculum because the training assesses specific abilities from a technological and business perspective and requires them to apply skills in new situations. As the process of learning is about learning how to apply the e-commerce principles, this approach helps to develop transferable skills for immediate employment. Examples of such institutions are The National Workforce Center for Emerging Technologies (n.d.) and D&B (2002). Other approaches, such as the **systems-based, personal relevance/experiential-based** and **socially critical-based approaches**, have minimal influence on the curriculum apart from building on prior learning and contributing to the development of reflection and critical inquiry.

## Audience

The course attracts both local and international business and technical learners. However, currently, the technical learners have less of an opportunity to express themselves from a technical perspective. Therefore, incorporating a technical component would be useful in the curriculum. This study proposes that a balance of technical and business knowledge be incorporated to keep both parties interested in the long term. Justifications for this proposal are provided below.

## Explicit and implicit goals

The explicit goal of the course is to develop entrepreneurial skills for starting and managing an online business. As indicated in the *Degree Programme Brochure 2004*, the main goal is to prepare students for future management roles in the field of e-commerce and to provide sufficient knowledge to enable them to be technologically competent (The Open Polytechnic of New Zealand, 2004a). Implicitly, this gives learners a sense of ownership and motivates them to be creative about how they promote their business. Learners are given websites to critically evaluate, which develops their critical thinking and analytical skills from an e-commerce perspective.

## Teaching methods

Applying teaching strategies appropriate to the kinds of student taught is important in the teaching-learning process. Cognitive factors in web-page design apply where some level of intuition for easy navigation and information access is available. Pedagogy lies in the way web-page instructions are presented in hyper-textual form. For the teaching of adult learners, an andragogical approach is adopted.

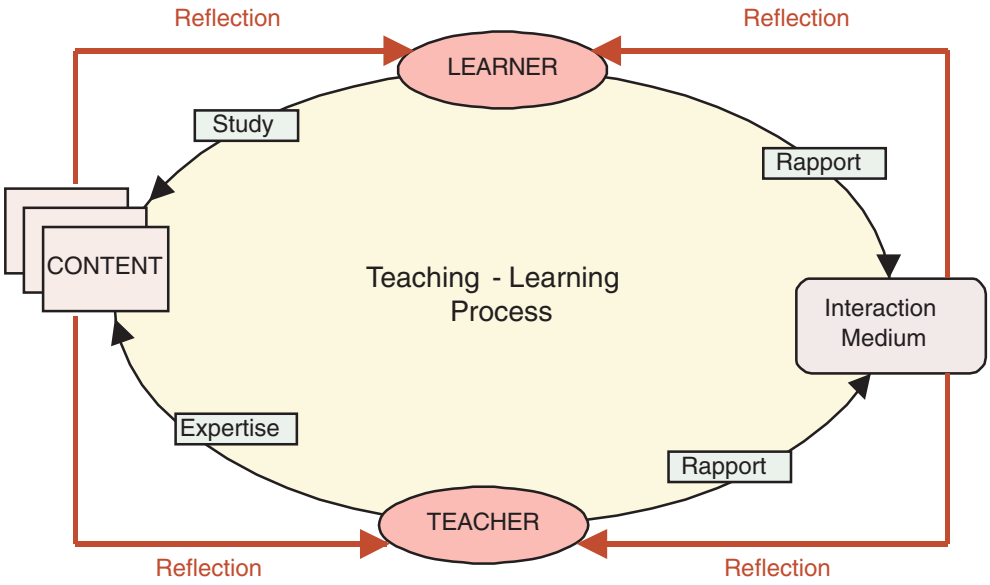


***Fig. 1*** *Activities and interactions within the teaching-learning process*

Figure 1 above illustrates the activities and interactions surrounding the teaching-learning process and highlights where self-reflection potentially takes place for the tutor and the learner in this process. Self-reflection enables the construction and connection of knowledge, which is essential for cognitive growth and development.

Self-reflection cannot be measured within one's mind. However, the degree of reflection carried out can be perceived through one's work and behaviour, for example, through conversations, decisions made, the depth of analysis done during research, intellectual debates, and so on. Self-reflection can be influenced to some extent by culture, language barriers, customs, and traditions. For example, a person may not know a particular language well enough to express their reflections, but this does not necessarily mean that they have not reflected.

They may very well have reflected but language barriers prevented them from expressing their thoughts accurately. Thus, the depth of the reflection could not be clearly conveyed or perceived. Therefore, further analysis or a different form of assessment may be required to verify the degree of reflection. In any case, because one's words and actions can be interpreted in various ways, the measurement of self-reflection is open to debate.

The effectiveness of the teaching-learning process is governed by the amount of self-reflection that takes place. Where possible, self-reflection and critical thinking are promoted, either through interactions or through the course material. The activities are problem-based questions based on existing e-commerce websites and the information contained in each module. Their purpose is to promote self-reflection and critical thinking in preparation for the assignments. Because the course is web-based, the interaction medium is predominantly the Internet, through e-mails and discussion forums, but other media, such as telephone and letters, are also used. Digital libraries and web-based collaboration methods provide further support.

With distance education, because face-to-face contact is minimal, participation on discussion forums is encouraged to promote active learning. The first three weeks of a semester are seen to be crucial in establishing the teacher-student relationship. Ground rules are set then to promote a positive climate and to draw students into online discussions. According to Wlodkowski and Ginsberg's Motivational Framework for Culturally Responsive Teaching (Wlodkowski, 1999), the *establishing inclusion* condition is vital for setting the scene for class discussions. E-mails are sent to all the students to welcome them at the start of the semester. Learners are welcomed individually with a personalised reply based on their introductory message to help each learner feel welcomed. Bulk weekly emails are sent to steer students along the approved line of thinking. Preparatory information to help students understand what is expected of them at a tertiary level is provided, such as information on the importance of research, on the importance of using citations and referencing, and so on.

The degree of effectiveness of teacher-learner communication influences the learning that takes place. Knowing which teaching strategy, channels of communication and protocols to apply depends on how well tutors understand the learners and the problems that they face: how well they connect with the learners and provide the sustenance they seek. According to Palmer (1998), his ability to connect with students depends less on the methods he uses than on the degree to which he knows and trusts his selfhood.

Learners need to feel comfortable interacting on the forum or sending e-mails to their tutors if it is more appropriate. Where possible, lecturers should encourage students to self-reflect and connect with the course material and their experiences because self-reflection contributes to high order thinking. They should also highlight the importance of students' exchanging information as the forum is there for students' learning. The sharing of information, such as relevant publications or articles, by lecturers and fellow learners encourages learners to share some of their information, too. Thus, reciprocity and cooperation develop among students (Chickering and Gamson, 1987).

The most common motivational issue faced by a class teacher is trying to get all the students to interact. Some may choose to remain quiet as observers in the background. Their quietness does not necessarily mean that they are not motivated to learn. It may simply imply that their preference is to study on their own. Increased participation may not mean increased learning (Natanasabapathy, 2003). Keeping in touch on an individual basis helps to ensure that the quiet learners are progressing well. Those who do participate demonstrate deliberation, appreciation, hope and autonomy when they interact with other learners.

## Justifications for curriculum changes

Industry requirements indicate that the demand for e-commerce expertise is exploding in all business categories (Mangan, 1999; Durlabhji & Fusilier, 2002). Many researchers believe that e-commerce is an inseparable part of the business curriculum. Therefore, it is ***essential*** that business knowledge remains a core curriculum component (Krishnamurthy, 2003; Williams, Kwak, Morrison, & Oladunjoye, 2000; Durlabhji & Fusilier, 2002). These researchers support the current curriculum as it is business-oriented. However, many researchers also believe that e-commerce professionals need to be equipped with both business and technical knowledge in order to be effective in the marketplace (Krishnamurthy, 2003; Tabor, 2002; Kalakota & Robinson, 1999). The analysis in this study also supports this view. Celsi and Wolfinbarger also believe that people need to be trained to acquire cross-disciplinary skills because information technology (IT) and business strategy functions are merging (2001). By providing both business and technological knowledge, two disparate groups of people can work together to provide solutions (Krishnamurthy, 2003).

As EC is about buying and selling online, it is ***desirable*** to include technical knowledge and online resources to support and assess the trading and transaction aspects of e-commerce from a practical viewpoint. To include them would enable the course to serve the Bachelor of Business programme well and align itself better with the Bachelor of Applied Science and Diploma of Information Systems and Technology programmes. It would also increase the relevance of *71 150 Information Systems* as a prerequisite course. By including a technical component, other courses such as *71 152 Web Design* and *72 182 Writing for the Web* could also serve as foundational knowledge to this course. Furthermore, the approach taken in this study is in alignment with the objectives documented in The Open Polytechnic charter goals and strategic objectives (The Open Polytechnic of New Zealand, 2004c).

Therefore, it is useful to have a Web development component as part of the EC curriculum to provide the technical exposure to students. One approach would be to have a static website where modifications to existing topics are carried out. Students could apply the e-commerce principles by using the online resources provided. Another approach would be to set up an e-commerce environment that provides students with the experience of role-playing in an online retail environment. For example, a flexible agent-based e-commerce system could be used to simulate a multi-player shopping game, where students could play the role of buyer, seller, supplier, broker, and so on (Griss & Letsinger, 2000).

For the purposes of this study and owing to time constraints, the first approach was implemented using a static e-commerce website as part of the EC course revision in 2004. Students are required to modify the website by applying the e-commerce principles through the use of supporting resources and the online tools provided.

Both of these approaches teach students how to apply the e-commerce knowledge. However, the second approach would be more expensive because funding, supporting resources and technologies would need to be in place to ensure maintenance of the environment.

# Conclusion

This study has enabled the author to take a holistic and systematic approach to course revision, while taking into consideration the pedagogical aspects of course design. It has led the author to reflect on various pedagogical approaches and to make rational strategic decisions that have enhanced the whole course instead of doing ad-hoc updates, which may have undermined the original course design. The approach also fits in with the objectives documented in The Open Polytechnic charter goals and strategic objectives, which helped to increase the relevance of this study for The Open Polytechnic (The Open Polytechnic of New Zealand, 2004c).

The research carried out was useful in enabling a deeper understanding of the EC course design and its position in relation to The Open Polytechnic's programmes and industry requirements. It also helped to justify the proposed changes in the curriculum. So this approach would be a useful pathway for any course revision, and aspects of this study could be used to create an improved course revision process.

As for the EC curriculum changes, having a technical component, which requires the practical application of e-commerce knowledge, is desirable. While there was no clear indication about the best approach for e-commerce education or the criteria that should be met in choosing the best approach for e-commerce, the **competency-based approach** appears to be relevant in assessing the required skills of an e-commerce professional. Celsi and Wolfinbarger (2001) believe that people need to be trained to acquire cross-disciplinary skills because IT and business strategy functions are merging and becoming more pervasive and customer-oriented. As a future enhancement to the course, an infrastructure that simulates an online retail environment would be useful to give students the experience of online role-playing in an e-commerce environment. This would help to develop not only e-commerce application skills but also transferable skills, for immediate employment in the marketplace.

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# Appendix – Framework of philosophical approaches

The table that follows shows how *71 254 Electronic Commerce* fits in relation to Toohey's (1999) five philosophical approaches and the fundamental aspects of course design.

**Table 1:** *71 254 Electronic Commerce* in relation to Toohey's framework of course design

| Philosophical approaches | View of Knowledge | Process of learning, roles of teachers and students | The learning goals and how they are expressed | How content is chosen and organized | Purpose of assessments and methods used | Kinds of resources and infrastructure needed |
|---|---|---|---|---|---|---|
| **Traditional/ discipline-based approach** | Emphasis on rationality & managerial aspects<br>Abstract knowledge of other disciplines<br>Knowledge based on theories, concepts, principles<br>Knowledge has control over the world | E-learning<br>Students self-directed & self-managed<br>Teachers act as facilitators | Goals as list of topics (business & technical knowledge)<br>Learning how to apply e-commerce principles, theories | Logically structured and sequenced<br>Cross-disciplinary<br>Content provides an overview of discipline | Confirm extent of knowledge<br>Students marked on discriminating scale<br>Results are norm-referenced | Marking can be assigned to teaching assistants.<br>Textbooks, a source of important knowledge<br>Curriculum delivered electronically to large numbers<br>Technical infrastructure for developing online application skills |
| **Performance/ Systems-based approach** | | Builds upon prior learning | | | | |
| **Cognitive-based approach** | | Students apply EC principles<br>Teachers draw new levels of analysis and research done | Higher quality thinking for analysis & argument<br>Learning to think critically & creatively | | Need to justify decisions/ judgements<br>Problem-based questions | |
| **Personal relevance/ Experiential based approach** | Reflection on social/ professional needs, relevance to professional | | | | | |
| **Socially critical- based approach** | | | | | Develop skills of critical inquiry | |